



## Closure Paper

<b>Title:</b>	EMM Phase 1	<b>Sanction Paper #:</b>	USSC-17-241C
<b>Project #:</b>	INVP 3430 Capex: S007551	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	2/12/2019
<b>Author:</b>	Aravind Lochan / Andrew Yee	<b>Sponsor:</b>	John Gilbert, Global Head of Service Delivery
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	David McCune

### 1 Executive Summary

This paper is presented to close INVP 3430. The total spend was \$1.210M. The original sanctioned amount for this project was \$ 0.401M at +/- 10%.

Note: The latest sanction amount was \$1.225M at +/- 10%

### 2 Project Summary

This project established and deployed a Software as a Service (SaaS) based Enterprise Mobility Management (EMM) service platform, which is capable of on-boarding National Grid mobile devices with National Grid's security policies, app store to access all corporate systems and corporate data in a secure fashion.

This project has also implemented ng-m (secured mobile National Grid wifi access) specific to National Grid mobile devices as part of Phase 1.

### 3 Variance Analysis

#### 3.1 Cost Summary Table

Project Sanction Summary (\$M)				
INVP 3430 - EMM - Phase 1	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
INVP 3430 - EMM - Phase 1	Capex	1.018	0.000	(1.018)
	Opex	0.192	0.401	0.209
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>1.210</b>	<b>0.401</b>	<b>(0.809)</b>



## Closure Paper

### 3.2 Cost Variance Analysis

The project cost variance is associated with a scope change of licenses from 2000 to 4000 users, as well as a financial decision to make a one-time purchase of the 4000 perpetual licenses and a dedicated environment to run EMM platform.

### 3.3 Schedule Variance Table

Schedule Variance	
Project Grade - Ready for Use Date	4/20/2018
Actual Ready for Use Date	4/27/2018
Schedule Variance	7 days

### 3.4 Schedule Variance Explanation

The schedule variance was a direct result of a couple of change requests which were implemented during the project release:

- (1) VLAN (Virtual Local Area Network) setup was complete in data centers
- (2) Corporate Mobile network access (ng-m) was enabled

## 4 Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)				
INVP 3430 - EMM - Phase 1	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
INVP 3430 - EMM - Phase 1	Capex	1.018	0.000	(1.018)
	Opex	0.192	0.401	0.209
	Removal	0.000	0.000	0.000
	Total	1.210	0.401	(0.809)

## 5 Improvements / Lessons Learned/Root Cause

Initiate NSSR (Non-Standard Service Requests) process upfront to engage any vendor to deliver as per project schedule. 2018-LL-590



## Closure Paper

### 6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IS Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IS Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

### 7 Statements of Support

#### 7.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Doug Page	Business Representative
PDM	Helen Smith	Head of PDM
BRM	Brian Detota	Relationship Manager
PDM	Ken Wermann	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Dan DeMauro	Director
DR&S	Peter Shattuck	Manager
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Director



## Closure Paper

### 7.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego



***Closure Paper***

**8 Decisions**

I approve this paper.

Signature.....Date.....

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair



**Closure Paper**

<b>Title:</b>	Itron Enterprise Edition (IEE) Consolidation-Phase 1 Migration to Standard Meter Platform	<b>Sanction Paper #:</b>	USSC-16-245 C
<b>Project #:</b>	INVP 3486 Capex: S007554	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	March 12, 2019
<b>Author:</b>	Joseph M. Howard	<b>Sponsor:</b>	John Spink, VP Control Center Operations
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	Jeffrey Dailey

**1 Executive Summary**

This paper is presented to close INVP 3486. The total spend was \$1.943M. The original sanctioned amount for this project was \$1.958M at +/- 10%.

**2 Project Summary**

This project delivered a consistent meter reading platform utilizing the Itron Enterprise Edition (IEE) version 8.1 cloud based solution. This solution will support the replacement of aging commercial and industrial meters Second generation wireless (2G) with Fourth generation wireless (4G) meters. This will include 3,000 meters in New York (NY), 400 in Massachusetts (MA) and 170 in Rhode Island (RI).

**3 Variance Analysis**

**Cost Summary Table**

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Itron Enterprise Edition (IEE) Consolidation-Phase 1 Migration to Standard Meter Platform	Capex	1.675	1.678	0.003
	Opex	0.268	0.280	0.012
	Removal	0.000	0.000	0.000
	Total	1.943	1.958	0.015

**Cost Variance Analysis**

The project cost variance is within tolerance.

## Closure Paper



### 3.1 Schedule Variance Table

Schedule Variance	
Project Grade - Ready for Use Date	5/4/2018
Actual Ready for Use Date	5/4/2018
Schedule Variance	- 0 years, 0 months, 0 days

### 3.2 Schedule Variance Explanation

The schedule variance is within tolerance.

## 4 Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Itron Enterprise Edition (IEE) Consolidation-Phase 1 Migration to Standard Meter Platform	Capex	1.675	1.678	0.003
	Opex	0.268	0.280	0.012
	Removal	0.000	0.000	0.000
	Total	1.943	1.958	0.015

## 5 Improvements / Lessons Learned/Root Cause

- Disparities in total customer counts existed between National Grid's internal system and the external partner's system. For future projects, the regulatory asset/customer billing system should be the governing system. This is a key area, with the object of identifying best practice and passing on learning to improve subsequent decisions and performance. [2019-LL-646](#)



## Closure Paper

### 6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IT Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IT Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

This project was not an Electric or Gas complex capital project.

### 7 Statements of Support

#### 7.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Catherine McClure	Business Representative
Business Partner (BP)	Robert Lorkiewicz	Relationship Manager
Program Delivery Management (PDM)	Jeffrey Dailey	Program Delivery Director
IT Finance	Michelle Harris	Manager
IT Regulatory	Daniel DeMauro	Director
Digital Risk and Security (DR&S)	Peter Shattuck	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Director





## ***Closure Paper***

### **7.2 Reviewers**

The reviewers have provided feedback on the content/language of the paper.

<b>Function</b>	<b>Individual</b>
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego



***Closure Paper***

**8 Decisions**

I approve this paper.

Signature.....Date.....

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair

## Closure Template

<b>Title:</b>	New Medical System	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 3718	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	8/23/2018
<b>Author:</b>	Sally Seltzer	<b>Sponsor:</b>	Jeanette Mills SVP , SHE
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Sally Seltzer

### 1 Executive Summary

This paper is presented to close INVP 3718 – New Medical System. The total spend was \$0.665M. The original sanctioned amount for this project was \$0.699M at +/- 10% (project grade).

### 2 Project Summary

This project was implemented to consolidate multiple systems and processes into a new single Medical System solution by replacing the outdated in-house legacy National Grid Medical Systems Database and antiquated paper file systems residing in multiple locations. Cority's Medical System was selected as the system which closely matches National Grid's requirements.

The system in place is a Software As A Service (SaaS) solution which is hosted and maintained by the vendor, Cority. Also, the project has implemented the solution along with converting the legacy data and building interfaces to supports its use at National Grid.

### 3 Variance Analysis

#### 3.1 Cost Summary Table

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance
New Medical System	Capex	0.380	0.389	0.009
	Opex	0.285	0.310	0.025
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>0.665</b>	<b>0.699</b>	<b>0.034</b>

#### 3.2 Cost Variance Analysis

The project spending was \$0.034M under the sanctioned amount which is within the 10% tolerance.

**Closure Template**

nationalgrid

**3.3 Schedule Variance Table**

Schedule Variance	
Project Grade – Ready for Use Date	01/16/2018
Actual Ready for Use Date	02/08/2018
Schedule Variance	0 years, 0 months, 23 days

**4 Final Cost by Project**

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance
3718	Capex	0.380	0.389	0.009
	Opex	0.285	0.310	0.025
	Removal	0.000	0.000	0.000
	Total	0.665	0.699	0.034

**5 Improvements / Lessons Learned/Root Cause**

Below listed are the lessons learned from this project:

- Availability of the SAP HR feed was an issue that delayed the final implementation . Communication of any and all important milestones/conflicting priorities from all vendors involved could have been done better.This would have helped prioritise the work and plan for successful deployment as per initial plan. (2018-LL-512)

## Closure Template

### 6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IS Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IS Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

### 7 Statements of Support

#### 6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Role	Individual
Business Representative	Denise Griffing
Head of PDM	Deborah Rollins
Relationship Manager	Rick Sheer
Program Delivery Director	Sally Seltzer
IS Finance Management	Michelle Harris
IS Regulatory	Tom Gill
DR&S	Elaine Wilson
Service Delivery	Mark Mirizo
Enterprise Architecture	Svetlana Lyba



***Closure Template***

**8 Decisions**

The US ISSC Sanctioning Committee and Executive Sponsor has reviewed and approved this paper.

Signature.....Date- 3-Sept , 2018.....

John Gilbert  
Acting US CIO

**Closure Paper**

nationalgrid

<b>Title:</b>	VDI – Virtual Desktop Interface	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 3901	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	11/30/2018
<b>Author:</b>	John Braziel / David McCune	<b>Sponsor:</b>	Steve Maxwell, Global Head of Cloud & Hosting Technologies
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	John Braziel / David McCune

**1 Executive Summary**

This paper is presented to close INVP 3901 VDI – Virtual Desktop Interface. The total spend was \$0.674M. The original sanctioned amount for this project was \$0.600M at +/- 10% (project grade).

**2 Project Summary**

This project was intended to reduce the development and operation cost through the introduction of an offshore development model using VMs (virtual machines). To support the offshore development a “stop gap” solution was developed to allow offshore developers to connect to NG. However, the number of offshore developers had increased significantly since that time the stop gap was implemented and this existing method was not scalable beyond current numbers. In 2016, there was a predicted increase for desktop requirements for offshore resources of 20%-35%. In addition, the process for providing offshore support staff with this access currently did not meet DR&S’ security policies. The INVP3901 VDI project did mitigate this risk by implementing a new secure method to access National Grid systems using a VMware VDI solution.

**3 Variance Analysis****3.1 Cost Summary Table**

Project Sanction & Actual Spend Summary (\$M)				
VDI	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance
INVP 3901	Capex	0.253	0.286	0.033
	Opex	0.421	0.314	(0.107)
	Removal	0.000	0.000	0.000
	Total	0.674	0.600	(0.074)

## **Closure Paper**

### **3.2 Cost Variance Analysis**

The testing duration was extended by six months due to random disconnect problems from the National Grid VPN network. The off shore testers experienced these disconnects during the UAT testing. To prevent random disconnects it was determined to move to the IBM DataCenter. The overspend of \$0.074M was due to longer than expected project timelines to complete user acceptance testing of the 251 applications, the unplanned activity of moving to a new IBM Datacenter and retesting required by this datacenter move.

To resolve the random disconnects the following detail breaks down the project timelines and cost increase's reasons:

Increased scope for the creation of a new environment: A new environment was needed to be created by moving the VMware Datacenter onto the IBM Soft Layer Datacenter. VMware VDI software was also upgraded to the current release level. Impact extended the project's timeline six (6) months.

Increase scope for retesting of applications: Applications that had previously been tested required retesting once the new environment was created.

Increased scope for testing of new applications: New applications were required to be tested including the latest release of VMWare and 20 XP apps that were previously excluded from the project's scope.

Note: The project cost variance exceeds the 10% tolerance variance state. The project cost variance state is 12% rather than the tolerance 10% level.

### **3.3 Schedule Variance Table**

N/A

### **3.4 Schedule Variance Explanation**

The overspend of \$0.074M was due to longer than expected project timelines to complete user acceptance testing of the 251 applications. The testing duration was extended by six months due to random disconnect problems from the National Grid VPN network that the testers experienced during the UAT testing.



**Closure Paper**

nationalgrid

**4 Final Cost by Project**

Actual Spending Summary (\$M)				
VDI	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance
INVP3901	Capex	0.253	0.286	0.033
	Opex	0.421	0.314	(0.107)
	Removal	0.000	0.000	0.000
	Total	0.674	0.600	(0.074)

**5 Improvements / Lessons Learned/Root Cause**

2018-LL-550: Early involvement of the IS group is essential to identify business needs and technology selection processes. Early involvement and communications with vendors, CSM's and SO's is essential.

2018-LL-551: Longer planned duration of test time is needed in the project plan to validate, iterate and finalize application data feeds. On almost every instance of the data validation process, we exceeded the original time estimate by 100% (from 15 days to 30 days per App).

2018-LL-553: Longer planned duration of implementation and test time is needed in the project plan to identify, validate, and implement firewall rules. On almost every instance of the firewall rule install process, we exceeded the original time estimate by 200% (from 30 days to 60 days per install attempt).

**6 Closeout Activities**

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No

## Closure Paper

All IT Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IT Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

## 7 Statements of Support

### 7.1 **Supporters**

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Don Rera	Business Representative
Program Delivery ManagementPDM	Helen Smith	Head of PDM
Business Partner (BP)	Brian Detota	Relationship Manager
Program Delivery Management (PDM)	David McCune	Program Delivery Director
IT Finance	Michele Harris	Manager
IT Regulatory	Tom Gill	Manager (if Tom Gill)
Digital Risk and Security (DR&S)	Elaine Wilson	Director Security
Service Delivery	Harold Pinkster	Manager
Enterprise Architecture	Joe Clinchot	Director (if Joe Clinchot)

### 7.2 **Reviewers**

N/A

**Closure Paper**

**8 Decisions**

The US ITSC Sanctioning Committee and Executive Sponsor has reviewed and approved this paper.

Signature.....Date.....

Premjith Singh

VP IT Tower Lead – Gas Business Partner



## Closure Paper

<b>Title:</b>	US Data Center Clearance	<b>Sanction Paper #:</b>	USSC-16-303C
<b>Project #:</b>	INVP 4001	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	12/18/2018
<b>Author:</b>	Andrew Gould	<b>Sponsor:</b>	John Gilbert, Global Head IS Service Delivery
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	Andrew Gould

### 1 Executive Summary

This paper is presented to close INVP4001, US Data Center Clearance 4 DC Phase 1. The total spend was \$0.349M. The original sanctioned amount for this project was \$0.679M at +/- 10%.

### 2 Project Summary

This project completed a review and inventory of the corporate equipment, for example, servers, switches, applications, etc., in four US Legacy Data Centers and determined a direction for each item. The three main categories that all corporate equipment was assigned to are:

- Decommission & Remove
- Retain and Consolidate
- Migrate to CSC Data Center (Applications only)

### 3 Variance Analysis

#### 3.1 Cost Summary Table

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
US Data Center Clearance Phase 1	Capex	0.000	0.000	0.000
	Opex	0.349	0.000	0.000
	Removal	0.000	0.000	0.000
	Total	0.349	0.679	0.330

#### 3.2 Cost Variance Analysis

The project team was able to reduce the supplier estimates without compromising scope and deliverables.



Closure Paper

3.3 Schedule Variance Table

Schedule Variance	
Project Grade - Ready for Use Date	31/5/2017
Actual Ready for Use Date	1/11/2017
Schedule Variance	- 0 years, 5 months, 0 days

3.4 Schedule Variance Explanation

Project Manager changes with the vendors and with National Grid caused delays in delivering the project on time. The volume of equipment to be discovered was more than anticipated by the vendors.

4 Final Cost by Project

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
US Data Center Clearance Phase 1	Capex	0.000	0.000	0.000
	Opex	0.349	0.000	0.000
	Removal	0.000	0.000	0.000
	Total	0.349	0.679	0.330

## Closure Paper



### 5 Improvements / Lessons Learned/Root Cause

- 2018-LL-557
  - Learning Area: Financial, Planning
  - Impact: Negative
  - Impact Was: Causing the overall proposed cost of the project to be higher than necessary.
  - Because Of: Allowing the Verizon proposal to be too high.
  - Leading To: The sanctioning amount to be higher then necessary.
  - Mitigation: Verizon proposed a larger cost amount for their work to allow for delays and cost overruns. Recommend additional in-depth planning sessions with the vendor.
- 2018-LL-558
  - Learning Area: Managerial
  - Impact: Negative
  - Impact Was: Project delay, loss of knowledge
  - Because Of: Change in PMs on both the National Grid and partner sides.
  - Leading To: New PMs had to try and come up to speed quickly but did not have the knowledge and history of activities that had taken place in the months prior.
  - Mitigation: Try and keep PMs throughout the project and have increase detail of all project activities.

### 6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IT Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IT Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No



**Closure Paper**

**7 Statements of Support**

**7.1 Supporters**

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Paul Circolone	Business Representative
PDM	Helen Smith	Head of PDM
BP	Caitlin Davidson	Business Partner
PDM	Chris Granata	Program Delivery Director
IS Finance	Michelle Harris	Director
IS Regulatory	Tom Gill	Manager
DR&S	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Svetlana Lyba	Director

**7.2 Reviewers**

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego



**Closure Template**

**8 Decisions**

I approve this paper.

Signature.....Date.....

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair





## US Sanction Paper

<b>Title:</b>	UPS Replacement for Data Communication Closets	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4003 Capex: S007993	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	11/30/2018
<b>Author:</b>	Friya Jamshedji / Andrew Yee	<b>Sponsor:</b>	Barry Sheils, Vice President IS Infrastructure & Operations
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	Heather Cortes / Doug Campbell

### 1 Executive Summary

#### 1.1 **Sanctioning Summary**

This paper requests sanction of INVP 4003 in the amount of \$0.314M with a tolerance of +/- 10% for the purposes of Full Implementation.

*This sanction amount is \$0.314M broken down into:*

*\$0.212M Capex*

*\$0.102M Opex*

*\$0.000M Removal*

#### 1.2 **Project Summary**

This project will purchase and replace new batteries in existing Uninterruptable Power Supply (UPS) units, with the possibility of replacing UPS units, to support the trouble-free operation of National Grid's network and telephony equipment located at various corporate locations.

#### 1.3 **Summary of Projects**

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
INVP 4003		UPS Replacement for Data Communication Closets	0.314
<b>Total</b>			<b>0.314</b>



## US Sanction Paper

### 1.4 Associated Projects

N/A

### 1.5 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Sanction Type	Potential Investment Tolerance
10/12/18	ISSC	\$0.082M	\$0.308M	Partial	+/-25%

### 1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
June 2019	Project Closure Sanction

### 1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	This project will purchase and replace UPS batteries with the possibility of replacing the UPS units in the event the UPS does not carry load after the batteries are replaced.



## US Sanction Paper

### 1.8 Asset Management Risk Score

Asset Management Risk Score: 41

**Primary Risk Score Driver:** (Policy Driven Projects Only)

☒ Reliability      ☐ Environment      ☐ Health & Safety      ☐ Not Policy Driven

### 1.9 Complexity Level

☐ High Complexity    ☐ Medium Complexity    ☒ Low Complexity    ☐ N/A

Complexity Score: 16

### 1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes      ☒ No

### 1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
IS Investment Plan FY19 – 23	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under <input type="radio"/> NA	\$0.786M

### 1.12 If cost > approved Business Plan how will this be funded?

N/A



## US Sanction Paper

### 1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2018/19	Yr. 2 2019/20	Yr. 3 2020/21	Yr. 4 2021/22	Yr. 5 2022/23	Yr. 6 + 2023/24	
CapEx	0.000	0.212	0.000	0.000	0.000	0.000	0.000	0.212
OpEx	0.000	0.097	0.005	0.000	0.000	0.000	0.000	0.102
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.309	0.005	0.000	0.000	0.000	0.000	0.314

### 1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	July 2018
Partial Sanction	October 2018
Begin Requirements and Design	October 2018
Project Sanction	November 2018
Begin Development and Implementation	November 2018
Begin User Acceptance Testing	December 2018
Move to Production / Last Go Live	April 2019
Project Closure	June 2019

### 1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement Impact			



**US Sanction Paper**

<b>Procurement impact on network system:</b>	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
--	---------------------------	-----------------------------	--

1.16 **Key Issues (include mitigation of Red or Amber Resources)**  
N/A

1.17 **Climate Change**

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

1.18 **List References**  
N/A



**US Sanction Paper**

**2 Decisions**

The US IS Sanctioning Committee (ISSC) and Executive Sponsor have reviewed and approved this paper:

- (a) APPROVED this paper and the investment of \$0.314M and a tolerance of +/- 10% for the purposes of Full Implementation.
- (b) NOTED that Heather Cortes is the Project Manager and has the approved financial delegation.

Signature.....Date.....

Premjith Singh  
VP IT Tower Lead – Gas Business Partner



## **US Sanction Paper**

### **3 Sanction Paper Detail**

<b>Title:</b>	UPS Replacement for Data Communication Closets	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4003 Capex: S007993	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	11/30/2018
<b>Author:</b>	Friya Jamshedji / Andrew Yee	<b>Sponsor:</b>	Barry Sheils, Vice President IS Infrastructure & Operations
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	Heather Cortes / Doug Campbell

#### **3.1 *Background***

There are aging UPS devices in approximately 50-60 Data Communications closets and a large number of them are beyond their life expectancy. As the UPS devices age, the batteries within them can no longer hold a charge. Therefore the UPS devices cannot supply momentary power to keep the hardware from failing. Having a reliable power source for the networking and telephony equipment ensures reduced failures and availability through momentary power losses to ensure business continuity and reliability of IT Services.

#### **3.2 *Drivers***

One of the main drivers of this project is reliability. These UPS devices that are the subject of this investment, were installed in 2014 and are now reaching their end of life cycle. These UPS devices will need to supply momentary power to keep Verizon network and telephony equipment located at various corporate locations from failing.

#### **3.3 *Project Description***

This project will purchase and replace new batteries with the possibility of having to also purchase UPS units to support the trouble-free operation of the National Grid network and telephony equipment located at 50-60 Data Communication sites in the US.

The UPS's for this project are primarily located in the Main Communication Room and the Satellite Closet at a site. At some sites, this project will replace the UPS batteries in each room (Main Communication Room and Satellite Closets) and for some sites, only one of the two rooms.



## ***US Sanction Paper***

The sites in scope are electric restoration sites and the network equipment supports the operations of the electric storm rooms. The Main Communication rooms primarily support the network equipment that provides connectivity to the WAN circuits and the satellite closets primarily support connectivity to end user devices. The goal is to keep the entire network up and running for anyone operating their PC working in the storm room.

The UPS maintenance vendor Anchor Systems, will work closely with National Grid for scheduling site visits since access to the National Grid sites and UPS rooms and closets may require special access. Advance notice and scheduling will be vital to ensure that the facilities or telecommunication teams helping to provide escorting and access receive advance notice, scheduling and planning. The changing of the batteries will be done after hours so as to not have any impacts during regular business hours.

The UPS model types for this project are:

- Eaton 9PX Series, 9PX5KTF5 UPS
- Eaton 5PX Series, Single Phase Rack/Tower UPS 5PX1500RTN
- Eaton PW9130G3000R-XL2U
- 1 UPS Unit of this type: Eaton 3KVA 120V in/and Unit w/Network Card - 5PX3000RTN.

Anchor Systems Tech will bring down the UPS and connect with the Verizon Network Operation Center (NOC) Technician to validate that the systems are functioning once the batteries have been replaced on the UPS.

The vendor Anchor Systems will run electrical voltage tests to confirm that the UPS are running properly.

### ***3.4 Benefits Summary***

- Ensures Business continuity of operations during normal and extreme weather conditions.
- Protects network equipment from electrical spikes and dips as well as protection from a hard shutdown, further improving reliability.
- Increases reliability which improves productivity.

### ***3.5 Business and Customer Issues***

There are no significant business issues beyond what has been described elsewhere.





## US Sanction Paper

### 3.6 Alternatives

**Alternative 1: Do Nothing/Defer:** This option does not deliver the desired business benefits. This is not recommended as the aging UPS devices will not be able to supply momentary power to keep Verizon network and telephony equipment running which can cause outages that can affect an entire site.

**Alternative 2: Replace the complete UPS unit:** This option is more expensive as the cost of each UPS unit is \$5,000 and the life of the actual UPS unit is still good, just the batteries have a shorter life cycle and need to be replaced.

### 3.7 Safety, Environmental and Project Planning Issues

There are no significant issues beyond what has been described elsewhere.

### 3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Vendor Coverage Area - The vendor identified may not cover all of the ngrid sites where the UPS batteries need to be changed	3	5	5	15	15	Mitigate	Work with procurement to create a bid proposal to put out to multiple vendors to find a suitable vendor to cover all ngrid areas.		
2	Nonfunctioning UPS - there is a risk that a UPS may not come back up after a battery is replaced; the UPS may have to be replaced completely	1	3	3	3	3	Mitigate	Vendor will have a few new units with him in case they are needed.		
3	Access to rooms/closets - there is a risk that facilities may not be available to help if access is required to the closet where the UPS is located	3	5	5	15	15	Mitigate	Planning ahead of time with facilities to make the appropriate plans and scheduling.		
4	Limited Anchor Systems technicians - there is a risk we will only have one technician to do this work which will take longer to complete the work because of the wide coverage of the area	3	4	5	12	15	Accept	Working with facilities to work early in the morning and also in the evening to makeup for the lack of technicians.		
5	Floor plan / location risks - Facilities technicians use different words to describe room locations within a site; There is a risk that a facilities tech may not know where to direct/guide the vendor as to where the exact UPS is located	4	5	5	20	20	Mitigate	We will be meeting with facilities after planning each site visit so that we can meet with facilities and make sure they have a good understanding as to where the main communication rooms and the satellite closets are so that when the vendor gets to that site, there is no confusion as to where they are going.		

### 3.9 Permitting

N/A



## US Sanction Paper

### 3.10 Investment Recovery

#### 3.10.1 Investment Recovery and Regulatory Implications

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

#### 3.10.2 Customer Impact

N/A

#### 3.10.3 CIAC / Reimbursement

N/A

### 3.11 Financial Impact to National Grid

#### 3.11.1 Cost Summary Table

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
INVP 4003	UPS Replacement for Data Communication Closets	+/- 10%	CapEx	0.000	0.212	0.000	0.000	0.000	0.000	0.000	0.212
			OpEx	0.000	0.097	0.005	0.000	0.000	0.000	0.102	
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			Total	0.000	0.309	0.005	0.000	0.000	0.000	0.314	
Total Project Sanction			CapEx	0.000	0.212	0.000	0.000	0.000	0.000	0.000	0.212
			OpEx	0.000	0.097	0.005	0.000	0.000	0.000	0.000	0.102
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			Total	0.000	0.309	0.005	0.000	0.000	0.000	0.314	



## US Sanction Paper

### 3.11.2 Project Budget Summary Table

#### Project Costs Per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	0.200	0.200	0.200	0.000	0.000	0.000	0.600
OpEx	0.000	0.100	0.200	0.200	0.000	0.000	0.000	0.500
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.300	0.400	0.400	0.000	0.000	0.000	1.100

#### Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	(0.012)	0.200	0.200	0.000	0.000	0.000	0.388
OpEx	0.000	0.003	0.195	0.200	0.000	0.000	0.000	0.398
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(0.009)	0.395	0.400	0.000	0.000	0.000	0.786

### 3.11.3 Cost Assumptions

### 3.11.4 Net Present Value / Cost Benefit Analysis

#### 3.11.4.1 NPV Summary Table

N/A

#### 3.11.4.2 NPV Assumptions and Calculations

N/A

### 3.11.5 Additional Impacts

N/A



## **US Sanction Paper**

### **3.12 Statements of Support**

#### **3.12.1 Supporters**

The supporters listed have aligned their part of the business to support the project.

<b>Department</b>	<b>Individual</b>	<b>Responsibilities</b>
Business Department	Doug Page/ Adriano Antiquera	Business Representative
Program Delivery Management (PDM)	Helen Smith	Head of PDM
Business Partner (BP)	Caitlin Davidson	Relationship Manager
Program Delivery Management (PDM)	Doug Campbell	Program Delivery Director
IT Finance	Michelle Harris	Manager
IT Regulatory	Tom Gill	Manager
Digital Risk and Security (DR&S)	Peter Shattuck	Manager
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Director

#### **3.12.2 Reviewers**

N/A

## **4 Appendices**

### **4.1 Sanction Request Breakdown by Project**

N/A



## US Sanction Paper

### 4.2 Other Appendices

#### 4.2.1 Project Cost Breakdown

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources	0.044	0.048	0.092	
	SDC Time & Materials	0.033	0.043	0.076	IBM
		0.000	-	-	WiPro
		0.000	-	-	DXC
		0.000	-	-	Verizon
	SDC Fixed-Price	0.000	-	-	IBM
		0.000	-	-	WiPro
		0.000	-	-	DXC
		0.000	-	-	Verizon
	All other personnel	0.000	-	-	
	<b>TOTAL Personnel Costs</b>	<b>0.077</b>	<b>0.091</b>	<b>0.168</b>	
Hardware	Purchase	0.000	0.140	0.140	
	Lease	0.000	-	-	
Software		0.000	-	-	
Risk Margin			-	-	
AFUDC			0.003	0.003	
Other		0.000	0.003	0.003	
<b>TOTAL Costs</b>		<b>0.077</b>	<b>0.237</b>	<b>0.314</b>	



## US Sanction Paper

### 4.2.2 Benefiting Operating Companies

Operating Company Name	Business Area	State
National Grid USA Parent	Parent	
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Services Inc.	Service Company	
KeySpan Energy Corp.	Service Company	
KeySpan Energy Delivery New York	Gas Distribution	NY
KeySpan Energy Delivery Long Island	Gas Distribution	NY
KeySpan Generation LLC (PSA)	Generation	NY
KeySpan Glenwood Energy Center	Generation	NY
KeySpan Port Jefferson Energy Center	Generation	NY
Keyspan Energy Trading Services	Other	NY
Niagara Mohawk Power Corp.- Electric Distr.	Electric Distribution	NY
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
Massachusetts Electric Company	Electric Distribution	MA
Massachusetts Electric Company – Transmission	Transmission	MA
Nantucket Electric Company	Electric Distribution	MA
Boston Gas Company	Gas Distribution	MA
Colonial Gas Company	Gas Distribution	MA
Narragansett Gas Company	Gas Distribution	RI
Narragansett Electric Company	Electric Distribution	RI
Narragansett Electric Company – Transmission	Transmission	RI
New England Power Company – Transmission	Transmission	MA,NH,RI,VT
New England Hydro - Trans Corp.	Inter Connector	MA, NH
New England Electric Trans Corp	Inter Connector	MA
NG LNG LP Regulated Entity	Gas Distribution	MA,NY,RI
Trans Gas Inc.	Non-Regulated	NY

### 4.2.3 IS Ongoing Operational Costs (RTB):

There are no Run the Business (RTB) costs associated with this project. This project will either replace the aged batteries or the existing UPS at the designated sites and not provide any ongoing maintenance services for these devices. After the physical work is completed, the project ends there for that UPS/Site.

### 4.3 NPV Summary (if applicable)

N/A



***US Sanction Paper***

**4.4 Customer Outreach Plan**  
N/A

## nationalgrid

### Closure: US Sanction Paper

Title:	Aging Systems Stabilization/Upgrade Program	Sanction Paper #:	USSC-16-198C
Project #:	INVP 4188	Sanction Type:	Closure
Capex #:	S006922		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	4/30/2019
Author:	Hofsiss, Nancy	Sponsor:	Bennett, Thomas E. VP Assu
Utility Service:	IT	Project Manager:	Blazavich, Lori

### Executive Summary

This paper is presented to close 4188. The total spend was \$1.889M. The original sanctioned amount for this project was \$1.950M at +/- 10%.

### Project Summary

The purpose of this investment was to create a Program of Work and provided a funding source for various Operation applications system stabilization/upgrade efforts over the course of the year. Several Operations applications were dependent on outdated and soon to be non-supported operating systems, components and platforms such as Windows 2003. This investment upgraded, enhanced and re-platformed some of the higher at-risk Operations applications and replaced outdated components. These were items that were imperative initiatives to keep critical systems running, and provided the level of service that the business required. The program team evaluated each candidate system to determine the most critical to be funded through this investment. This investment was run as a program of work which had a Governance Board which consisted of the functional area owners that had their system updated (Gas, Electric, other). The individual Projects within this Program followed the normal Governance Process based on each project's level of spend. The Program Board approved the individual initiatives based on level of spend and provided overall governance of the program. The individual projects undertaken were:

- AVLS – Vehicle Location System – upgraded the database, servers and components to supported versions.
- DTS – Damage Tracking System – upgraded database to supported version and upgrade servers to supported version.
- SEAL - Storm Emergency Assignment List – upgraded database, servers and components to supported versions.

### Schedule Variance Table

	Schedule Variance
Project Grade - Ready to use Date	4/28/2018
Actual Ready to use Date	9/8/2018
Schedule Variance	0 year(s), 4 month(s), 13 day(s)
Schedule Variance Explanation	



WS01 - AVLS: Severe weather and a high number of storms impacted the go-live date for the AVLS work stream, along with a defective database server and modifications to the application configuration and testing.

WS02 - SEAL: Ready for Use Date 03/30/2018 - Actual Ready for Use Date 12/19/17 - Variance -3 months, 11 days

WS01 - DTS: Ready for Use Date 03/30/2018 - Actual Ready for Use Date 12/16/2017 - Variance -3 months, 14 days

#### Cost Summary Table

##### Project Sanction Summary (\$M)

Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
	Capex	1.631	1.500	(0.131)
	Opex	0.257	0.450	0.193
	Removal	0.000	0.000	0.000
	Total	1.889	1.950	0.061

#### Cost Variance Analysis

The spend for INVP 4188 AVLS Work Stream was over the sanctioned amount for Capex due to a longer testing period and additional server configurations required. The Opex underspend was due to a descope of a fourth candidate work stream for the Meter Inventory Tracking System (MITS).

Note: All work streams used the same accounting.

#### Final Cost by Project

##### Actual Spending (\$M) vs. Sanction (\$M)

Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
4188	Capex	1.631	1.500	(0.131)
	Opex	0.257	0.450	0.193
	Removal	0.000	0.000	0.000
	Total	1.889	1.950	0.061

##### Project Sanction Summary (\$M)

Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
Total	Capex	1.631	1.500	(0.131)
	Opex	0.257	0.450	0.193
	Removal	0.000	0.000	0.000
	Total	1.889	1.950	0.061

#### Improvements / Lessons Learned

##### AVLS

- Any application which needs significant data migration activities needs specialized database migration resources who need to work with the vendor to design a migration approach. The migration steps need to be tested and signed-off with all stakeholders. The testing (including row count, target schema, data quality) should be carried out every time we do migration prior to go-live. Vendor resources should be working closely with the project Database Administrators at all stages of the project to perform these functions. (2019-LL-684)
- The Networking testing should include showing all possible combination of data sources (region) to

- validate if data comes from all possible sources as designed and expected. (2019-LL-685)
- Only the most recent copy of the swap files should be copied over as they are cumulative, about 10 files. (2019-LL-686)
- Excel 2010 should have been recommended from the start if Windows 2012 servers don't work with Excel 2003. (2019-LL-687)
- Any new product or version released by the vendor to be tested at their end for all performance aspects before procurement at NG. If vendor has not done any such validation NG should include the performance testing in the scope of the project. (2019-LL-688)
- Identified a potential issue using Geo Stream (centralized) maps for all thick clients which involves significant network and bandwidth issues. This issue was identified prior to go-live and decision made to use local maps for new AVLS rollout which didn't create any performance issues to users post go-live. (2019-LL-689)

#### SEAL/DTS

- National Grid's hosting partner's capacity management process was reactive rather than proactive during the project; the Non-Standard Service Request (NSSR) proposal process appeared disconnected from capacity management process. This led to project delays in provisioning the needed servers and storage because new infrastructure had to be procured and installed. Future projects should engage National Grid's capacity management team during the startup phase of the project so that concerns can be identified and addressed before they create issues. Project Managers should also conduct regular reviews of current and future requirements with capacity management team. (2019-LL-691)

#### SEAL

- The database server supporting the application hosted over 40 other application databases. This added significant complexity to migrating the SEAL database without negatively impacting other applications. In the future, database servers should be limited to supporting one, or only a small number, of application databases with similar uses and metal band ratings. (2019-LL-692)

#### Closeout Activities

ACTIVITY	COMPLETED
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused material have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

#### Statement of Support

Department	Individual	Responsibilities
Business Department	Bennett, Thomas E.	Business Representative
Business Partner (BP)	Daly, Orla	Relationship Manager
Program Delivery Management (PDM)	Mcnaught, Michelle	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director

Reviewers		
	<i>Function</i>	<i>Individual</i>
Regulatory		Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE		Easterly, Patricia
Jurisdictional Delegate - Electric NY		Harbaugh, Mark A.
Jurisdictional Delegate - FERC		Hill, Terron
Jurisdictional Delegate - Gas NE		Smith, Amy
Jurisdictional Delegate - Gas NY		Wolf, Don
Procurement		Chevere, Diego

## Decisions

I approve this paper.

Signature 

Date 5/20/19

David H. Campbell, Vice President US Treasury, USSC Chair

## Appendix

N/A



## Closure: US Sanction Paper

Title:	End User Device Refresh (Windows 7 Phase 3 Assessment)	Sanction Paper #:	
Project #:	INVP 4266	Sanction Type:	Closure
Capex #:			
Operating Company:	National Grid USA Svc. Co.	Date of Request:	6/10/2019
Author:	Bucceri, Michael Yee, Andrew	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	McCune, David

## Executive Summary

This paper is presented to close INVP 4266. The total spend was \$0.611M. The original sanctioned amount for this project was \$0.560M at +/- 10%.

## Project Summary

The project delivered a focused assessment of the applications that were preventing the upgrade of XP to Windows 7 from being deployed. The assessment resulted in the selection of the appropriate delivery approach for each of the legacy applications e.g. retiring applications, using alternative applications and/or sanctioning a separate project for remediation and deployment of the applications.

## Schedule Variance Table

Schedule Variance	
Project Grade - Ready to use Date	3/31/2016
Actual Ready to use Date	6/1/2016
Schedule Variance	0 year(s), 2 month(s), 2 day(s)

## Schedule Variance Explanation

## Cost Summary Table

### Project Sanction Summary (\$M)

Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
Capex	0.258	0.220	(0.038)
Opex	0.353	0.340	(0.013)
Removal	0.000	0.000	0.000
Total	0.611	0.560	(0.051)

## Cost Variance Analysis

The cost variance is within the +/-10% tolerance.

### Final Cost by Project

#### Actual Spending (\$M) vs. Sanction (\$M)

Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
End User Device Refresh (Windows 7 Phase 3 Assessment)	Capex	0.258	0.220	(0.038)
	Opex	0.353	0.340	(0.013)
	Removal	0.000	0.000	0.000
	Total	0.611	0.560	(0.051)
Project Sanction Summary (\$M)				
	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
Total	Capex	0.258	0.220	(0.038)
	Opex	0.353	0.340	(0.013)
	Removal	0.000	0.000	0.000
	Total	0.611	0.560	(0.051)

### Improvements / Lessons Learned

**The assessment contains all lessons learned for the Windows 7 Rollout.**

#### Deployment - Poor Asset Information

- Understand the state of a user, device and application data available.
- Identify the impact of data states on the deployment.
- Work with CSMs to obtain data.

#### Deployment - Post Deployment Support

- Consider the post-deployment support model and ensure it provides adequate levels of support for the business.
- Ensure post-implementation support is thoroughly discussed, understood and agreed by the project and the service delivery BAU teams.

#### Deployment - Incorrect User Data

- Understand the state of a user, device and application data available and the impact of this on a deployment.

#### Deployment - Remote Sites Struggled

- Consider the post-deployment support model and ensure it provides adequate levels of support for the business.

#### Deployment - Scope for Pilot Tests inadequate

- If a pilot is going to be done, think carefully about the participants.
- We often use "easy" groups compared to some of the other business areas who have complicated apps.

#### Deployment - Lack of Business use cases

- Understand the importance of use cases for it is important for the critical business areas and teams.
- Spend a "day in the life of" with critical teams (e.g. GNCC, TNCC, ops etc.) to understand their requirements/ways of working, etc.

#### Deployment - Schedules Not Followed

- If appointments are needed to migrate, "charge" the business for missed deployments.



- Provide deployment metrics to senior business stakeholders.

#### Deployment - Vendor Unable to Fulfill Requirements

- National Grid was required to hire technical resources.
- Ensure vendors can meet requirements ahead of project engagement.

#### Deployment - Techs Not Accountable to Schedule

- Communications and scheduling should have a dedicated resource to ensure all parties are available.

#### Program Structure - Lack of Change and Adoption Resources

- Review resource requirements to ensure the appropriate roles required are understood and allocated.

#### Testing - Business Champions Didn't Understand Expectations

- Ensure testing requirements are clearly communicated and understood.

#### Testing - Business Units could Not Commit to Testing

- Ensure senior stakeholder commitment is obtained to help drive any testing.
- Ensure all requirements are clearly communicated and understood.

#### Testing - Test Plan Was Not Extensive

- Need CMDB information on legacy applications to prepare and plan testing activities.
- The business should be challenged to use other applications/methods.
- Business partners need to make testing a priority.

#### Business Change - Training Schedules Had No Input from Business

- Ensure business timetables are understood where possible/appropriate and factor it into project schedules.

#### Business Change - Business Champion Engagement Failure

- Ensure business users understand their role.
- All communications should be clear.
- Set expectations early on about their role.

#### Business Change - Project Didn't Communicate Stats Out to Stakeholders

- Provide weekly progress reports to key business users.
- Support driving business champions to push their business areas to take any necessary action.

#### Accountability - Business Champion Participation

- Implement a form of accountability for participation and completion of deliverables.

#### Training - Users Didn't Take Training

- Ensure training strategy is in place which takes into account different learning styles and requirements.

#### Adoption - Training Was Not a Requirement

- Make training a requirement.
- Track training completion on corporate Learning Management Systems.

#### Application Compatibility - Standardization of Applications in the US

- Need CMDB information on legacy applications to prepare and plan testing activities.
- The business should be challenged to use other applications/methods.

### Closeout Activities

ACTIVITY	COMPLETED
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been	



closed

All unused material have been returned

All as-builts have been completed

All lessons learned have been entered appropriately  
into the lesson learned database

☒ Yes ☐ No

☒ Yes ☐ No

☒ Yes ☐ No

☒ Yes ☐ No

### Statement of Support

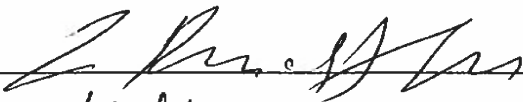
Department	Individual	Responsibilities
Business Department	Evans, Martin B (Group IS)	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	NMPC\wermak	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	Gill, Thomas F.	Manager
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director

### Reviewers

Function	Individual
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

## Decisions

The US ITSC Sanctioning Committee and Executive Sponsor has reviewed and approved this paper.

Signature 

Date 08/13/19

Premjith Singh  
VP IT EPMO

## Appendix

N/A

<b>Title:</b>	VSTIG Hardware Refresh (Reverse Proxy Upgrade)	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP4274	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	12/7/2018
<b>Author:</b>	Aravind Lochan / Chris Gatland	<b>Sponsor:</b>	John Gilbert, Global Head IS Service Delivery
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	Chris Gatland

## 1 **Executive Summary**

This paper is presented to close INVP 4274. The total spend was \$0.694M. The sanctioned amount for this project was \$0.747M at +/- 10%.

*The final spend amount is \$0.694M broken down into:*

*\$ 0.404 M Capex  
\$ 0.290 M Opex  
\$ 0.000 M Removal*

## 2 **Project Summary**

This project replaced end of life reverse proxy appliances with new like for like proxy appliances. The reverse proxy appliance are used to terminate web applications and SSL (Secure Socket Layers) encryption traffic at the reverse proxy and hides the existence of the origin server; this enables deep packet inspection to take place against web traffic and protect against malicious attacks. The proxy provides application firewall to protect against common attacks like DDoS (Distributed Denial of Service). National Grid also employs reverse proxies to perform a load balancing function to distribute the incoming load from incoming requests across different web servers. The end of life proxy appliances have been decommissioned. The project was implemented successfully.

### 3 Variance Analysis

#### 3.1 Cost Summary Table

Project Sanction Summary (\$M)				
INVP 4274 VSTIG Hardware Refresh	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
INVP 4274 VSTIG Hardware Refresh	Capex	0.404	0.728	0.324
	Opex	0.290	0.019	(0.271)
	Removal	0.000	0.000	0.000
	Total	0.694	0.747	0.053

#### 3.2 Cost Variance Analysis

The project was delivered under budget and within the risk margin, however the support and maintenance costs were originally misapplied to CAPEX and later revised resulting in an under-spend to CAPEX and an over-spend in OPEX.

#### 3.3 Schedule Variance Table

Schedule Variance	
Project Grade – Ready for Use Date	05/17/2017
Actual Ready for Use Date	06/31/2018
Schedule Variance	10 months, 18 days

#### 3.4 Schedule Variance Explanation

The schedule variance was a direct result of Verizon being unable to allocate any resources until Aug 2017 even though the PWO was signed in March 2017. Verizon did not have enough depth and breadth in Professional Services and Security Consultant resources to execute across multiple VSTIG projects at the same time. Verizon eventually recruited additional resources to allow the project to be completed.

#### 4 **Final Cost by Project**

Actual Spending (\$M) vs. Sanction (\$M)				
INVP 4274 VSTIG Hardware Refresh	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over)/ Under
INVP 4274 VSTIG Hardware Refresh	Capex	0.404	0.728	0.324
	Opex	0.290	0.019	(0.271)
	Removal	0.000	0.000	0.000
	Total	0.694	0.747	0.053

Actual Spending (\$M) vs. Sanction (\$M)				
Total	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over)/ Under
Total	Capex	0.404	0.728	0.324
	Opex	0.290	0.019	(0.271)
	Removal	0.000	0.000	0.000
	Total	0.694	0.747	0.053

#### 5 **Improvements / Lessons Learned/Root Cause**

There were many lessons to be learned from this project which could help future infrastructure projects:

No	Description	Recommendation	Reference #
1	National Grid and Verizon do not have a test environment or non production environment for the reverse proxies, this led to long delays in the implementation as all testing had to be done in production and subject to change management timelines. When a major defect was encountered it took over a month to schedule a troubleshooting window in production	National grid should purchase and maintain non-production environments for all critical systems	2018-LL-605
2	Verizon was unable to allocate any resources until Aug 2017 even though the PWO was signed in March 2017. Verizon did not have enough depth and breadth in PS and PSSC resources to execute across multiple VSTIG projects at the same time. Verizon eventually recruited additional resources.	Verizon need to do better at resource planning and pipeline management	2018-LL-606

## 6 **Closeout Activities**

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input checked="" type="radio"/> Yes <input type="radio"/> No
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IT Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IT Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

## 7 **Statements of Support**

### 7.1 **Supporters**

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Doug Page	Business Representative
Program Delivery Management (PDM)	Helen Smith	Head of PDM
Business Partner (BP)	Caitilin Davidson	Relationship Manager
Program Delivery Management (PDM)	Chris Granata	Program Delivery Director
IT Finance	Michelle Harris	Manager
IT Regulatory	Dan DeMauro	Director
Digital Risk and Security (DR&S)	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager

Enterprise Architecture	Joe Clinchot	Director
-------------------------	--------------	----------

**7.2      *Reviewers***

N/A





***Closure Paper***

**8 Decisions**

The US ISSC Sanctioning Committee and Executive Sponsor has reviewed and approved this paper.

Signature.....Date.....

Premjith Singh

VP IT Tower Lead – Gas Business Partner

**Closure Paper**

<b>Title:</b>	US VSTIG Bandwidth Upgrade Phase 2	<b>Sanction Paper #:</b>	USSC-16-222
<b>Project #:</b>	INVP 4280 Capex: S006981	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	4/9/2019
<b>Author:</b>	Michael Bucceri / Robert Thomas	<b>Sponsor:</b>	Barry Sheils, Vice President IS Infrastructure & Operations
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	Douglas Campbell

**1 Executive Summary**

This paper is presented to close INVP4280. The total spend was \$2.311M. The original sanctioned amount for this project was \$3.538M with a tolerance of +/- 10%.

**2 Project Summary**

The Verizon Strategic Internet Gateway (VSTIG) network environments were upgraded to increase the network capacity to 1gb/s internet speed per VSTIG. This project upgraded and enabled multiple projects which depended on the internet speed & capacity increase. Some of these projects that were dependent are the legacy De-Militarized Zone (DMZ) migration, Wide Area Network (WAN) and Cloud Services.

**3 Variance Analysis****Cost Summary Table**

Project Sanction Summary (\$M)				
US VSTIG Bandwidth Upgrade Phase 2	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
INVP 4280 Capex: S006981	Capex	2.294	3.508	1.214
	Opex	0.017	0.030	0.013
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>2.311</b>	<b>3.538</b>	<b>1.227</b>

## Closure Paper



### Cost Variance Analysis

The variance in cost is due to Grouping several changes together allowed the project team to deliver this project for a greater savings and delivered this project under the projected sanctioned amount.

	Sanction	Actual
Resource	0.351	0.233
Hardware	1.981	1.508
Supplier Resource	0.891	0.506
Overheads	0.165	0.064
Risk:	0.150	0.000
<b>TOTAL</b>	<b>3.538</b>	<b>2.311</b>

So it looks as though the variance is made up of:

- More efficient delivery with less resource was required than predicted at sanction.
- After negotiations with Verizon, we've accomplished a significant saving on hardware costs and supplier resources.
- There was an underspend on overhead charges.
- Discovered there was no need to utilize 150k in risk that was included.

### 3.1 Schedule Variance Table

Schedule Variance	
Project Grade - Ready for Use Date	5/31/2017
Actual Ready for Use Date	2/23/2018
Schedule Variance	0 years, 8 months, 23 days

### 3.2 Schedule Variance Explanation

There are a few reasons for the schedule variance shown above.

- 1) National Grids networks were complex and took longer to complete than expected.
- 2) Due to end of year change freezes, the changes were delayed until the year end processing was completed.
- 3) While the main equipment/firewall work and circuit upgrades were completed, the project also needed to deliver logical upgrades that were implemented after the physical changes were completed.



**Closure Paper**

**4 Final Cost by Project**

Actual Spending (\$M) vs. Sanction (\$M)				
US VSTIG Bandwidth Upgrade Phase 2	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
INVP 4280 Capex: S006981	Capex	2.294	3.508	1.214
	Opex	0.017	0.030	0.013
	Removal	0.000	0.000	0.000
	Total	2.311	3.538	1.227

**5 Improvements / Lessons Learned/Root Cause**

KM Tool Reference Number: 2018-LL-629

**6 Closeout Activities**

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IT Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IT Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No



## Closure Paper

### 7 Statements of Support

#### 7.1 **Supporters**

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department (BD)	Chris Kelly	Business Representative
IT Business Partner (BP)	Caitlin Davidson	Relationship Manager
Program Delivery Management (PDM)	Douglas Campbell	Program Delivery Director
IT Finance	Michelle Harris	Manager
IT Regulatory	Daniel J. DeMauro	Director
Digital Risk and Security (DR&S)	Peter Shattuck	Manager
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joseph J. Clinchot	Director

#### 7.2 **Reviewers**

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego



***Closure Paper***

**8 Decisions**

I approve this paper.

Signature.....Date.....

David H. Campbell, Vice President of US Treasury, USSC Chair

## nationalgrid

### Closure: US Sanction Paper

Title:	US Network Improvements	Sanction Paper #:	USSC-17-385 C
Project #:	INVP 4289	Sanction Type:	Closure
Capex #:	S007221		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	6/11/2019
Author:	Bucceri, Michael Yee, Andrew	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Kapur, Amit

### Executive Summary

This paper is presented to close INVP 4289. The total spend was \$1.515M. The original sanctioned amount for this project was \$0.987M at +/- 10%.

Note: The latest sanction amount was \$1.508M

### Project Summary

The project moved 4 sites onto the Verizon Network and decommissioned all legacy network equipment.

This project:

- Conducted surveys which produced site detailed designs.
- Prioritized sites based on the detailed surveys results.
- Communicated plan and shared to business users.
- Migrated the legacy system onto Verizon's network.
- Delivered new services (Wide Area Network / Local Area Network (WAN/LAN), and new Wi-Fi and guest Wi-Fi Access.

### Schedule Variance Table

	Schedule Variance
Project Grade - Ready to use Date	12/31/2016
Actual Ready to use Date	7/31/2018
Schedule Variance	1 year(s), 7 month(s), 2 day(s)

### Schedule Variance Explanation

Status of Deployment based on Locations:

Only one of the four locations (Bay Shore, New York) went live. There was a work stoppage on the remaining locations (Hicksville, Malden, and Lynn). The remaining budget was allocated to the Network Modernization Program due to a portfolio reprioritization.

### Cost Summary Table

Project Sanction Summary (\$M)

	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
	Capex	1.448	0.960	(0.488)
	Opex	0.067	0.027	(0.040)
	Removal	0.000	0.000	0.000
	Total	1.515	0.987	(0.528)

### Cost Variance Analysis

The overall spend was within tolerance of the re-sanctioned amount.

- The project required a re-sanction as the initial estimates for project costs associated with each project and duration were based on assumptions around ease of access to equipment and services that were shared with PSEG.
- The estimation process for the project did not foresee the issues that would be encountered due to the age and complexity of existing equipment and significant investment was required on new equipment.

### Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)

Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
US Network Improvements	Capex	1.448	0.960	(0.488)
	Opex	0.067	0.027	(0.040)
	Removal	0.000	0.000	0.000
	Total	1.515	0.987	(0.528)

Project Sanction Summary (\$M)

	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
Total	Capex	1.448	0.960	(0.488)
	Opex	0.067	0.027	(0.040)
	Removal	0.000	0.000	0.000
	Total	1.515	0.987	(0.528)

### Improvements / Lessons Learned

1. The scope of the project was not clearly understood when the project was initially sanctioned, which resulted in Re-sanction due to a large number of unknown factors. In the future, a project such as this would benefit from an initial Feasibility and Assessment project to better determine the issues that may add complexity and scope.

2. Requirements should be well defined before ordering equipment.

3. Separating the locations into separate projects would have allowed for better tracking and communications.

### Closeout Activities

#### ACTIVITY

All work has been completed in accordance with all National Grid policies  
Gate E checklist completed (appl. only to CCD)

#### COMPLETED

☒ Yes ☐ No

☐ Yes ☒ N/A



All relevant costs have been charged to project  
All work orders and funding projects have been closed  
All unused material have been returned  
All as-builts have been completed  
All lessons learned have been entered appropriately into the lesson learned database

☒ Yes ☐ No  
☒ Yes ☐ No  
☒ Yes ☐ No  
☒ Yes ☐ No  
☒ Yes ☐ No

#### Statement of Support

Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Campbell, Douglas	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director

#### Reviewers

Function	Individual
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

## Decisions

I approve this paper.

Signature David H. Campbell  
Date 6/13/19

David H. Campbell, Vice President US Treasury, USSC Chair

## Appendix

N/A

**Closure Paper**

nationalgrid

<b>Title:</b>	End User Device Refresh (Windows 7 Phase 3b Deployment)	<b>Sanction Paper #:</b>	USSC-16-196C
<b>Project #:</b>	INVP 4307 Capex: S007956	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	3/13/2019
<b>Author:</b>	Robert Thomas	<b>Sponsor:</b>	Barry Sheils Global Head IS Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Ken Wermann

**1 Executive Summary**

This paper is presented to close INVP 4307. The total spend was \$13.678M. The original sanctioned amount for this project was \$13.351M at +/- 10%.

**2 Project Summary**

The End User Device Refresh-Windows 7 project addressed the migration/transition from XP to Windows 7. This is the final phase of migrating users to refreshed devices and to the Windows 7 operating system. In order to migrate these final users, over 200 applications had to be remediated to run on Win7.

**3 Variance Analysis****Cost Summary Table**

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over)/ Under
End User Device Refresh (Windows 7 Phase 3b Deployment)	Capex	13.040	12.708	(0.332)
	Opex	0.638	0.643	0.005
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>13.678</b>	<b>13.351</b>	<b>(0.327)</b>

**Cost Variance Analysis**

The project cost variance is within tolerance

## Closure Paper

### 3.1 Schedule Variance Table

Schedule Variance	
Project Grade - Ready for Use Date	12/31/2016
Actual Ready for Use Date	11/2/2017
Schedule Variance	0 years, 10 months, 2 days

### 3.2 Schedule Variance Explanation

#### Vendor issues

At the last minute CSC informed us that they were unable to supply technical resource to deploy the devices. National Grid had to source, interview and hire sufficient technicians to carry out the deployments. CSC shipped a large number of devices that were incorrectly built. These devices were deployed and subsequently recalled and rebuilt before being re-deployed.

#### Application Remediation

During the course of the project it was discovered that many of the applications that were being used on Windows XP were not compatible with Windows 7. These applications had to be either remediated or virtualized as they were business critical. The analysis process to see which applications could be remediated or virtualized caused significant delays. The amount of remediation required had not been anticipated. The business was not keen on relinquishing all of its Windows XP devices until all the application issues were resolved.

#### Deployment

Deployment of devices was delayed due to scheduling and unavailability of business units. The deployment schedule was also adversely impacted by the issues with CSC mentioned above

## Closure Paper

nationalgrid

### 4 Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
INVP 4307 Capex: S007956	Capex	13.040	12.708	(0.332)
	Opex	0.638	0.643	0.005
	Removal	0.000	0.000	0.000
	Total	13.678	13.351	(0.327)

### 5 Improvements / Lessons Learned/Root Cause

KM Tool Reference Number: 2018-LL-629

### 6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IS Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IS Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

**Closure Paper****7 Statements of Support****7.1 Supporters**

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Partner	Elaine Hatzis	Business Representative
Business Partner (BP)	Caitlin Davidson	Relationship Manager
Program Delivery Management (PDM)	Kenneth Wermann	Program Delivery Director
IT Regulatory	Dan DeMauro	Director
IT Finance	Michelle Harris	Manager
Digital Risk and Security (DR&S)	Peter Shattuck	DR&S Lead
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Manager

**7.2 Reviewers**

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

**Closure Template**

**8 Decisions**

The US Sanctioning Committee (USSC) approved this paper at a USSC meeting held on <MM/DD/YYYY>.

Signature.....Date.....

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair



## nationalgrid

### Closure: US Sanction Paper

Title:	Wireless Network Improvement	Sanction Paper #:	USSC-16-197C
Project #:	INVP 4364	Sanction Type:	Closure
Capex #:	S006921		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	6/11/2019
Author:	Bucceri, Michael Yee, Andrew	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	McCune, David

### Executive Summary

This paper is presented to close INVP 4364. The total spend was \$2.705M. The original sanctioned amount for this project was \$1.810M at +/- 10%.

### Project Summary

This project replaced and decommissioned the legacy wireless access points. Capacity and coverage of the Wireless Local Area Network (WLAN) at various National Grid Sites were installed and expanded. As a result, the wireless networks' stability was strengthened.

The implementation of work consisted of:

- Identified, designed, and implemented WLAN controller replacements.
- Decommissioned legacy wireless network access points.
- Carried out site survey work which produced detailed designs on a site per site basis.
- Prioritized sites based on the output from the surveys.
- Liaised with the stakeholders of implementation plan and communicated the decision to the business users.
- Carried out implementation activities to migrate the legacy system onto Verizon's supported platform.
- Identified, planned, and executed the decommissioning of legacy WLANs and Service Station Identifiers (SSIDs).

### Schedule Variance Table

	Schedule Variance
Project Grade - Ready to use Date	2/28/2018
Actual Ready to use Date	5/1/2018
Schedule Variance	0 year(s), 2 month(s), 2 day(s)
Schedule Variance Explanation	

### Cost Summary Table

#### Project Sanction Summary (\$M)

	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
	Capex	2.404	1.570	(0.834)
	Opex	0.300	0.240	(0.060)
	Removal	0.000	0.000	0.000
	Total	2.705	1.810	(0.895)

#### Cost Variance Analysis

The original scope of the project was to upgrade 21 sites. After the original sanction, it was decided that three major sites (ResWoods, Metrotech and Hicksville) would be added to the scope. Significant additional cost was incurred due to the addition equipment of \$0.653M and labor of \$0.133M needed to complete these sites.

### Final Cost by Project

#### Actual Spending (\$M) vs. Sanction (\$M)

Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
Wireless Network Improvement	Capex	2.404	1.570	(0.834)
	Opex	0.300	0.240	(0.060)
	Removal	0.000	0.000	0.000
	Total	2.705	1.810	(0.895)

#### Project Sanction Summary (\$M)

	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance Over/ Under
Total	Capex	2.404	1.570	(0.834)
	Opex	0.300	0.240	(0.060)
	Removal	0.000	0.000	0.000
	Total	2.705	1.810	(0.895)

### Improvements / Lessons Learned

- Using Partial Sanctions will result in more accurate estimates on project costs and activities.
- Engaging cross-functional teams will ensure that all requirements are documented before the project is started will promote on time delivery of projects.
- The facility floorplan documentation was not always available, which caused delay of deployment of access points.
- Sharing information with our Customer Servicer Managers early and often so they can share it with the business.
  - [From a Communication Perspective, it is important to keep the business updated of progress on a project.]

### Closeout Activities

#### ACTIVITY

#### COMPLETED

All work has been completed in accordance with all National Grid policies  
Gate E checklist completed (appl. only to CCD)

☒ Yes ☐ No

All relevant costs have been charged to project

☐ Yes ☒ N/A

All work orders and funding projects have been closed

☒ Yes ☐ No

All unused material have been returned

☒ Yes ☐ No

All as-builts have been completed

☒ Yes ☐ No

All lessons learned have been entered appropriately into the lesson learned database

☒ Yes ☐ No

☒ Yes ☐ No

### Statement of Support

Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Campbell, Douglas	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director

### Reviewers

Function	Individual
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

## Decisions

I approve this paper.

Signature DLH. Campbell  
Date 6/13/19

David H. Campbell, Vice President US Treasury, USSC Chair

## Appendix

N/A

**Closure Paper**

nationalgrid

<b>Title:</b>	Community Choice Aggregation Reports	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4383 Capex: S007559	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	10/30/2018
<b>Author:</b>	Santosh Malvi/Riziel Cruz-Bower	<b>Sponsor:</b>	John Vaughn, VP Energy Procurement
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Santosh Malvi/ Riziel Cruz-Bower

**1 Executive Summary**

This paper is presented to close INVP 4383. The total spend was \$0.941M. The sanctioned amount for this project was \$0.967M at +/- 10%.

**2 Project Summary**

The NY Public Service Commission issued Case 14-M-0224 authorizing the framework for the “Community Choice Aggregation Opt Out Program” (CCA). Similarly, the Commonwealth of Massachusetts enacted the “Municipal Electric Aggregation” program under General Law Chapter 164, Section 134. These orders will allow all eligible customers of a participating municipality to enroll with an Energy Service Company (ESCO) for commodity purchase. This project provided National Grid with the tools and automation needed to be in compliance with these regulatory mandated programs.

**3 Variance Analysis****3.1 Cost Summary Table**

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Community Choice Aggregation Reports	Capex	0.752	0.769	0.017
	Opex	0.189	0.198	0.009
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>0.941</b>	<b>0.967</b>	<b>0.026</b>

**Closure Paper**

**3.2 Cost Variance Analysis**

No major impact, INVP 4383 Community Choice Aggregation is within +/-10% positive variance.

**3.3 Schedule Variance Table**

Schedule Variance	
Project Grade - Ready for Use Date	1/19/2018
Actual Ready for Use Date	1/19/2018
Schedule Variance	- 0 years, 0 months, 0 days

**3.4 Schedule Variance Explanation**

N/A

**4 Final Cost by Project**

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
4383	Capex	0.752	0.769	0.017
	Opex	0.189	0.198	0.009
	Removal	0.000	0.000	0.000
	Total	0.941	0.967	0.026

Actual Spending (\$M) vs. Sanction (\$M)				
Total	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Total	Capex	0.752	0.769	0.017
	Opex	0.189	0.198	0.009
	Removal	0.000	0.000	0.000
	Total	0.941	0.967	0.026

**Closure Paper****5 Improvements / Lessons Learned/Root Cause**

- Business resource availability may affect project time line and delivery during User Acceptance Testing. Understand resource requirements and reconfirm business availability prior to User Acceptance Testing. [KMT Tool Reference # - 2018-LL-572]
- When implementing brand new regulatory programs, such as CCA, there may not be a business subject matter expert nor a technical expert that know how to interpret the requirements. This could result in change requests due to requirement changes. Increase the project risk margin for brand new programs to accommodate for change requests. [KMT Tool Reference # - 2018-LL-573]

**6 Closeout Activities**

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IS Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IS Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No



Closure Paper

7 Statements of Support

7.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Griffiths, Juliana C.	Business Representative
PDM	Rollins, Deborah	Head of PDM
BRM	Douglas McCarthy	Relationship Manager
PDM	Riziel Cruz- Bower	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Tom Gill	Manager
DR&S	Diana Simkin	Manager
Service Delivery	James Lozito	Manager
Enterprise Architecture	Joseph Clinchot	Director

7.2 Reviewers

N/A



**Closure Template**

**8 Decisions**

The US ISSC Sanctioning Committee and Executive Sponsor has reviewed and approved this paper.

Signature.....Date.....

Premjith Singh  
VP IS Tower Lead, Ops & Network

**Closure Paper**

nationalgrid

<b>Title:</b>	US Mobile Device – FY18	<b>Sanction Paper #:</b>	USSC-17-198C
<b>Project #:</b>	INVP 4395 Capex: S007622	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	4/10/2019
<b>Author:</b>	Craig Costanzo	<b>Sponsor:</b>	John Bruckner, SVP Operations, and Engineering
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	Sally Seltzer

**1 Executive Summary**

This paper is presented to close 4395. The total spend was \$4.373M. The original sanctioned amount for this project was 5.156M at +/- 10%.

**2 Project Summary**

This policy-driven project implemented 750 mobile devices which were previously purchased as part of INVP 4671 – Mobile device refresh FY17 project. In addition, the project purchased 200 new mobile devices and mounting accessories to continue the effort of eliminating old devices from the field.

Mobile devices were mainly ruggedized computers – Panasonic Toughbooks and iTronix devices used in the field to access work management applications. A majority of mobile devices used in the field were more than 5 years old and these devices had an impact day to day productivity. These old devices broke down frequently and couldn't be easily repaired due to unavailability of parts and accessories (in some cases manufacturers had stopped supporting the devices).

The replacement of old mobile devices with the latest tough books allowed field technicians to have the reliable equipment and data required to perform their work in a safe and efficient manner.

**3 Variance Analysis****3.1 Cost Summary Table**

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Mobile Device Refresh	Capex	4.335	4.915	0.580
	Opex	0.038	0.241	0.203
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>4.373</b>	<b>5.156</b>	<b>0.783</b>

## Closure Paper

### 3.2 Cost Variance Analysis

The project underspend was primarily due to:

- Less 'full' installs were required than was originally requested
- Equipment purchases costing less than originally estimated
- The core Mobile team were able to deliver without adding additional resources.

### 3.3 Schedule Variance Table

Go Live Date: 03/30/2018

Schedule Variance	
Project Grade - Ready for Use Date	3/30/2018
Actual Ready for Use Date	3/30/2018
Schedule Variance	- 0 years, 0 months, 0 days

### 3.4 Schedule Variance Explanation

N/A

## 4 Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
4395	Capex	4.335	4.915	0.580
	Opex	0.038	0.241	0.203
	Removal	0.000	0.000	0.000
	Total	4.373	5.156	0.783

## 5 Improvements / Lessons Learned/Root Cause

It was discovered that Pre-Deployment visits made the delivery of these types of projects go smoothly. Introductions to the mobile team were made and the upgrade schedule was reviewed with the local lead supervisor and managers. It put the local management at ease and any unique needs were discovered and addressed prior to arrival by the installation teams. The Mobile team

**Closure Paper**

also was onsite when the first week when the installations start at each facility to further ensure the success of the project.

**6 Closeout Activities**

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IT Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IT Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

**7 Statements of Support****7.1 Supporters**

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	John Bruckner	Business Representative
Program Delivery Management (PDM)	Michelle Mcnaught	Head of PDM
Business Partner (BP)	Orla Daly	Relationship Manager
IT Finance	Michelle Harris	Manager
IT Regulatory	Dan DeMauro	Director
Digital Risk and Security (DR&S)	Peter Shattuck	Director
Service Delivery	Brian Detota	Manager
Enterprise Architecture	Svetlana Lyba	Director

**Closure Paper****7.2 Reviewers**

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego



**Closure Template**

**8 Decisions**

The US Sanctioning Committee (USSC) approved this paper at a USSC meeting held on **04/10/2019**

Signature.....Date.....

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair



## Resanction: US Sanction Paper

Title:	STORMS-IScheduler Stabilization Upgrade	Sanction Paper #:	USSC-16-283 v4
Project #:	INVP 4398	Sanction Type:	Resanction
Capex #:	S007321		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	6/12/2019
Author:	Stallard, Susan Higgins, Paula	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Mcnaught, Michelle

### Executive Summary

This paper requests Resanction of INVP 4398 in the amount of \$14.581M with a tolerance of +/-10% for the purposes of Resanction.

This sanction amount is \$14.581M broken down into:

\$13.754M Capex  
\$0.827M Opex  
\$0.000M Removal

Note the originally requested sanction amount of \$10.594M

### Project Summary

As the primary Work Management System (STORMS) and Work Management Scheduling tool (IScheduler) for the legacy National Grid service territories, these systems are critical applications in support of both Electric and Gas Operations, and have become increasingly unstable, experiencing multiple outages over the past several years, and are no longer supported by the vendor. This project will upgrade STORMS to the latest version of technology including: server hardware, system software and database software, along with bringing both standard and custom application code to the latest version of the technology. Additionally, the aged middleware components will be replaced with new supported components, and IScheduler will be replaced with the vendor's latest scheduling tool and integrated with the STORMS product.

### Related Projects, Scoring and Budget

#### Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount(\$M)
4398		STORMS-IScheduler Stabilization Upgrade	14.581
Total:			14.581

#### Prior Sanctioning History

Date	Governance	Sanctioned	Potential	Sanction	Sanction Paper	Potential
------	------------	------------	-----------	----------	----------------	-----------



	<b>Body</b>	<b>Amount</b>	<b>Project Investment</b>	<b>Type</b>		<b>Investment Tolerance</b>
4/1/2017	USSC	10.594	10.594	Sanction	USSC-16-283 v3	10%
2/1/2017	USSC	5.100	9.969	Partial Sanction	USSC-16-283 v2	25%
10/1/2016	USSC	4.064	8.232	Partial Sanction	USSC-16-283 v1	25%

Increase to capital investment due to the additional development / testing required to ensure the stability of the upgraded STORMS/ARM Scheduler.

#### Over / Under Expenditure Analysis

Summary Analysis	Capex	Opex	Removal	Total
Resanction Amount	13.754	0.827	0.000	14.581
Latest Approval	9.919	0.675	0.000	10.594
Change	3.835	0.152	0.000	3.987

#### Key Milestones

<b>Milestone</b>	<b>Date (Month / Year)</b>
Start Up	August, 2016
Partial Sanction	October, 2016
Begin Requirements and Design	October, 2016
Partial Sanction	February, 2017
Project Sanction	April, 2017
Begin Development and Implementation	May, 2017
Begin User Acceptance Testing	November, 2018
Re-sanction	June, 2019
Move to Production / Final Go Live	September, 2019
Project Closure Sanction	December, 2019

#### Next Planned Sanction

Date (Month/Year)	Purpose of Sanction Review
December, 2019	Closure

#### Business Plan

<b>Business Plan Name &amp; Period</b>	<b>Project Included in approved Business Plan?</b>	<b>Over / Under Business Plan</b>	<b>Project Cost relative to approved Business Plan (\$M)</b>
IT Investment Plan Fy20 - 24	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under <input type="radio"/> N/A	0.161

If Cost > Approved

if costs > approved Business Plan how will this be funded?

N/A

## Drivers

The key drivers of this Investment are:

- Deliver increased reliability of the Work Management System (STORMS) and the Work Force Scheduling tool by moving to supported version of the application systems and components.
- Reduce the risk of system outages due to failing components which are no longer supportable or available.
- Allow users to use newer, more readily available technology and devices.

Because of the importance of the applications, it is strongly recommended that the Company upgrade the applications at this time.

## Detailed Analysis Table

Detail Analysis	Over/Under Expenditure?	Amount (M's)
Project reset includes additional database space and stabilization for code migration and testing	<input checked="" type="radio"/> Over <input type="radio"/> Under	3.987

## Explanation of Key Variations

In November 2018, a project reset was required due to high volume of defects identified during UAT and executed mock testing scenarios. This resulted in an updated project plan that included:

- Extend the project timeline;
- Additional resources added to ensure best practices and enhance disciplines for Test Lead, Integrations Lead, Transition Services and I & O;
- Establishment new environments that support best practice of code promotion and test approach, due to the underestimation of the complexity for the migration of the upgrade and the interfaces and test approach; and
- Procurement of additional hardware to support the Oracle database upgrade.

## Cost Summary Table

Project Number	Project Title	Project Estimate Level	Spend	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
4398	STORMS- IScheduler Stabilization Upgrade	10	Capex	10.793	2.961	0.000	0.000	0.000	0.000	0.000	13.754
			Opex	0.556	0.271	0.000	0.000	0.000	0.000	0.000	0.827
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	11.349	3.232	0.000	0.000	0.000	0.000	0.000	14.581
Total Project Sanction			Capex	10.793	2.961	0.000	0.000	0.000	0.000	0.000	13.754
			Opex	0.556	0.271	0.000	0.000	0.000	0.000	0.000	0.827
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	11.349	3.232	0.000	0.000	0.000	0.000	0.000	14.581

## Project Costs per Business Plan

\$M	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
-----	------	------	------	------	------	------

	Prior Yrs	2020	2021	2022	2023	2024	2025	Total
Capex	10.793	2.963	0.000	0.000	0.000	0.000	0.000	13.756
Opex	0.556	0.430	0.000	0.000	0.000	0.000	0.000	0.986
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	11.349	3.393	0.000	0.000	0.000	0.000	0.000	14.742

	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
\$M								
Capex	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.002
Opex	0.000	0.159	0.000	0.000	0.000	0.000	0.000	0.159
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Variance	0.000	0.161	0.000	0.000	0.000	0.000	0.000	0.161

### Statement of Support

Department	Individual	Responsibilities
Business Department	Kogut, Diane K.	Business Representative
Business Partner (BP)	Lorkiewicz, Robert J.	Relationship Manager
Program Delivery Management (PDM)	Mcnaught, Michelle	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director

### Reviewers

Function	Individual
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

## Decisions

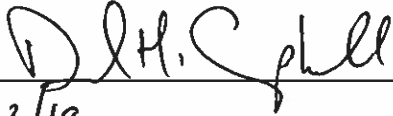
The US Sanctioning Committee (USSC) approved this paper at a meeting held on 06/12/2019:

(a) APPROVE the investment of \$14.581M and a tolerance of +/-10% for Resanction.

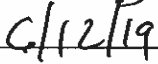
(b) NOTED that Mcnaught, Michelle has the approved financial delegation

(c) Approved the run-the-business (RTB) of \$0.71M (per annum) for 5 years.

Signature



Date



David H. Campbell, Vice President US Treasury, USSC Chair

## Appendix

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD +FTC)	Name of Firm(s) providing resources
Personnel	NG Resources	0.547	0.342	0.889	
	SDC Time & Materials	0.565	0.461	1.026	IBM
			0.051	0.051	WiPro
			0.069	0.069	DXC
			-	-	Verizon
	SDC Fixed-Price	0.504	-	0.504	IBM
		0.468	-	0.468	WiPro
		0.323	-	0.323	DXC
		0.030	-	0.030	Verizon
	All other personnel	7.782	1.309	9.091	
	<b>TOTAL Personnel Costs</b>	<b>10.219</b>	<b>2.232</b>	<b>12.451</b>	
Hardware	Purchase		-	-	
	Lease		-	-	
Software			-	-	
Risk Margin			0.202	0.202	
AFUDC		1.265	0.387	1.652	
Other		0.186	0.091	0.277	
<b>TOTAL Costs</b>		<b>11.670</b>	<b>2.911</b>	<b>14.581</b>	

**\*NOTE 2: ALTERNATIVE AM SUPPORT MODEL/SUPPLIERS MAY NEED TO BE PURSUED**  
all figures in \$ thousands

INV ID:	4398				Date RTB Last Forecasted	05/29/2019
Investment Name:	STORMS/iScheduler Stabilization					
Project Manager:	Paula Higgins			PDM:	Sally Seltzer	
All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total

<b>Last Sanctioned Net Impact to RTB</b>						
Last Sanction IS Net Impact to RTB	(93.0)	(101.0)	234.0			<b>40.0</b>
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	(93.0)	(101.0)	234.0	-	-	40.0
<b>Planned/Budgeted Net Impact to RTB</b>						
IS Investment Plan Net Impact to RTB	351.2	734.2	734.2	734.2	734.2	<b>3,288.0</b>
Business Budgeted Net Impact to RTB						-
<b>Currently Forecasted Net Impact to RTB</b>						
IS Funded Net Impact to RTB Forecasted at Go-Live	<b>324.4</b>	<b>734.2</b>	<b>706.2</b>	<b>707.0</b>	<b>708.3</b>	<b>3,180.2</b>
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
<b>Variance to Planned/Budgeted Net Impact to RTB</b>						
IS Investment Plan Net Impact to RTB Variance	26.8	(0.0)	28.0	27.2	25.9	107.8
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-

**Closure Paper**

nationalgrid

<b>Title:</b>	Annual HR & Payroll Mandatory Service Pack Upgrade (HRSP), FY18	<b>Sanction Paper #:</b>	USSC-17-024C
<b>Project #:</b>	INVP 4400 Capex: S007583 Capex: S007680	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	11/13/2018
<b>Author / NG Representative:</b>	Diane Beard / Ella Weisbord	<b>Sponsor:</b>	Doneen Hobbs, VP US Shared Services
<b>Utility Service:</b>	IT	<b>Project Manager:</b>	Samir Parikh

**1 Executive Summary**

This paper is presented to close INVP 4400. The total spend was \$1.549M. The original sanctioned amount for this project was \$1.662M at +/- 10%.

**2 Project Summary**

This project delivered updates to the US SAP application portfolio in order to comply with federal, state, and local government requirements. The updates are mandatory annual changes requested by Federal and State agencies, such as Internal Revenue Services (IRS), various State Departments of Finance, as well as different municipalities, which must be applied to the SAP core solution in order to properly reflect employee wages, employee and company withholdings, legal requirements and to comply with Federal and State regulatory reporting.

**3 Variance Analysis****3.1 Cost Summary Table**

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Annual HR & Payroll Mandatory Service Pack Upgrade (HRSP), FY18	Capex	1.243	1.267	0.024
	Opex	0.306	0.395	0.089
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>1.549</b>	<b>1.662</b>	<b>0.113</b>

**Closure Paper****3.2 Cost Variance Analysis**

This project has underspend of \$0.113M due to a decision to postpone two of the updates (C0 & C1 patches) until next fiscal year. The C0 and C1 patches are the collections of technical updates released by SAP in the month of December 2017. The team reviewed the changes and found that it would be more effective to bundle them in 2018 HRSP implementation rather than deploy them individually in 2017. This reduction in scope decreased final project cost.

**3.3 Schedule Variance Table**

Schedule Variance	
Project Grade - Ready for Use Date	3/31/2018
Actual Ready for Use Date	12/11/2017
Schedule Variance	- 0 years, 3 months, 20 days

**3.4 Schedule Variance Explanation**

N/A

**4 Final Cost by Project**

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
4400	Capex	1.243	1.267	0.024
	Opex	0.306	0.395	0.089
	Removal	0.000	0.000	0.000
	Total	1.549	1.662	0.113

**5 Improvements / Lessons Learned / Root Cause**

N/A



## Closure Paper

### 6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IS Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IS Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

### 7 Statements of Support

#### 7.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Gerard Huntley	Business Representative
Program Delivery Management (PDM)	Deb Rollins	Head of PDM
Business Partner (BP)	Joel Semel	Relationship Manager
Program Delivery Management (PDM)	Samir Parikh	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Daniel DeMauro	Director
Digital Risk and Security (DR&S)	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Director

**Closure Paper**

**7.2 Reviewers**

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego



***Closure Template***

**8 Decisions**

I approve this paper.

Signature.....Date.....

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair

**Closure Paper**

nationalgrid

<b>Title:</b>	SAP PowerPlan Maintenance of Business (MOB)	<b>Sanction Paper #:</b>	USSC-17-201C
<b>Project #:</b>	INVP 4401	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	10/2/2018
<b>Author / NG Representative:</b>	Diane Beard / Ella Weisbord	<b>Sponsor:</b>	Doneen Hobbs, VP US Shared Services
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Samir Parikh

**1 Executive Summary**

This paper is presented to close INVP 4401. The total spend was \$0.855M. The original sanctioned amount for this project was \$1.300M at +/- 10%.

**2 Project Summary**

This project provided a funding base and governance structure that allowed the Information Technology (IT) department through the governance and control of a Business Process Support (BPS) department to effectively deliver minor system changes to the BackOffice - US SAP, PowerPlan and Front Office application portfolio in response to requests from National Grid business areas in addition to regulatory mandates, legal, policy or operational requirements through the course of fiscal year 2017/18.

108 Mandatory, Operational Critical and Contractual (reflecting changes of various Collective Bargaining Agreements) changes, as well as 27 discretionary requests have been implemented.

**3 Variance Analysis****3.1 Cost Summary Table**

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
SAP PowerPlan Maintenance of Business (MOB)	Capex	0.000	0.000	0.000
	Opex	0.855	1.300	0.445
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>0.855</b>	<b>1.300</b>	<b>0.445</b>

**Closure Paper****3.2 Cost Variance Analysis**

This project has underspend of \$0.445M due to:

1. Challenges on estimates provided by supporting partner (Wipro) resulting in increased efficiencies/contract savings.
2. Competing priorities from parallel program of work (such as YouConnect and Gas Business Enablement) and limitation on business and IT resources resulting in postponing of some of the requests.

**3.3 Schedule Variance Table**

Schedule Variance	
Project Grade - Ready for Use Date	3/31/2018
Actual Ready for Use Date	3/31/2018
Schedule Variance	- 0 years, 0 months, 0 days

**3.4 Schedule Variance Explanation**

N/A

**4 Final Cost by Project**

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
4401	Capex	0.000	0.000	0.000
	Opex	0.855	1.300	0.445
	Removal	0.000	0.000	0.000
	Total	0.855	1.300	0.445

**5 Improvements / Lessons Learned / Root Cause**

N/A

## Closure Paper

### 6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IS Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IS Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

### 7 Statements of Support

#### 7.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Gary Spicer	Business Representative
Program Delivery Management (PDM)	Deb Rollins	Head of PDM
Business Partner (BP)	Joel Semel	Relationship Manager
Program Delivery Management (PDM)	Samir Parikh	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Daniel DeMauro	Director
Digital Risk and Security (DR&S)	Elaine Wilson	Director
Service Delivery	Brian Detota	Manager
Enterprise Architecture	Joe Clinchot	Director

**Closure Paper****7.2 Reviewers**

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego



***Closure Template***

**8 Decisions**

I approve this paper.

Signature.....Date.....

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair



**Closure Paper**

nationalgrid

<b>Title:</b>	US SAP Regulatory Requirements, Reporting & Rate Case support – FY18	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4402	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	9/28/2018
<b>Author / NG Representative:</b>	Diane Beard / Ella Weisbord	<b>Sponsor:</b>	Chris McConnachie, VP US Shared Services
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Samir Parikh

**1 Executive Summary**

This paper is presented to close INVP 4402. The total spend was \$0.106M. The original sanctioned amount for this project was \$0.200M at +/- 10%.

**2 Project Summary**

This project provided a funding base and governance structure that allowed the Information Services organization through the governance of the Business Process Support (BPS) team to effectively deliver and deploy solutions within the BackOffice - US SAP application portfolio in response to any regulatory mandate, regulatory audits, or compliance reporting received throughout the course of the year. The project exploited end-to-end views of information using the HANA platform enabling efficient and accurate reporting. Models were used to support in-depth analysis of historical trends, scenario analysis and predictive analytics for the Regulatory and Pricing group to prepare and respond to the regulators.

**3 Variance Analysis****3.1 Cost Summary Table**

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
US SAP Regulatory Requirements, Reporting & Rate Case support – FY18	Capex	0.000	0.000	0.000
	Opex	0.106	0.200	0.094
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>0.106</b>	<b>0.200</b>	<b>0.094</b>

**Closure Paper****3.2 Cost Variance Analysis****3.3 Variance Analysis**

This project has underspend of \$0.094M. The funds for unplanned regulatory requests must be available as needed each year. Historical spend is used to estimate the anticipated amount to request at the beginning of the current year. However, the number and complexity of requests vary each year and the funding indicates average spend. In 2018, seventeen requests were delivered.

**3.4 Schedule Variance Table**

Schedule Variance	
Project Grade - Ready for Use Date	3/31/2018
Actual Ready for Use Date	3/31/2018
Schedule Variance	- 0 years, 0 months, 0 days

**3.5 Schedule Variance Explanation**

N/A

**4 Final Cost by Project**

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
4402	Capex	0.000	0.000	0.000
	Opex	0.106	0.200	0.094
	Removal	0.000	0.000	0.000
	Total	0.106	0.200	0.094

**5 Improvements / Lessons Learned / Root Cause**

N/A

## Closure Paper

### 6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IS Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IS Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

### 7 Statements of Support

#### 7.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Gary Spicer	Business Representative
PDM	Deb Rollins	Head of PDM
BRM	Joel Semel	Relationship Manager
PDM	Samir Parikh	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Daniel DeMauro	Director
DR&S	Elaine Wilson	Director
Service Delivery	Brian Detota	Manager
Enterprise Architecture	Joe Clinchot	Director

#### 7.2 Reviewers

N/A



**Closure Template**

**8 Decisions**

The US ISSC Sanctioning Committee and Executive Sponsor has reviewed and approved this paper.

Signature.....Date.....

Premjith Singh

VP IS Tower Lead, Ops & Network



## Closure Paper

<b>Title:</b>	Annual Ariba Upgrade	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4403	<b>Sanction Type:</b>	Closure
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	9/21/2018
<b>Author / NG Representative:</b>	Diane Beard / Ella Weisbord	<b>Sponsor:</b>	Chris McConnachie, VP US Shared Services
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Samir Parikh

### 1 Executive Summary

This paper is presented to close INVP 4403. The total spend was \$0.095M. The original sanctioned amount for this project was \$0.280M at +/- 10%.

### 2 Project Summary

This project provided a funding base and governance structure that allowed the Information Services (IS) organization through the governance and control of the Business Process Support (BPS) department to effectively deliver patches and updates to the Ariba subscribers and perform regression testing to ensure the interfaces are functioning as designed and allowed to avoid any business outages.

### 3 Variance Analysis

#### 3.1 Cost Summary Table

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over)/ Under
Annual Ariba Upgrade	Capex	0.000	0.000	0.000
	Opex	0.095	0.280	0.185
	Removal	0.000	0.000	0.000
	<b>Total</b>	<b>0.095</b>	<b>0.280</b>	<b>0.185</b>

#### 3.2 Cost Variance Analysis

N/A

**Closure Paper****3.3 Variance Analysis**

This project underspent \$0.185M due to increased efficiency and negotiations with the supporting partner, Wipro. Additionally, various process improvements resulted in significantly lower demand for enhancements.

In addition, the enhancements planned for Ariba Spend Visibility, Ariba Sourcing, and Ariba Contract Management were postponed (descoped) following business process review. There were thirteen changes delivered under this program of work.

**3.4 Schedule Variance Table**

Schedule Variance	
Project Grade - Ready for Use Date	3/31/2018
Actual Ready for Use Date	3/31/2018
Schedule Variance	- 0 years, 0 months, 0 days

**3.5 Schedule Variance Explanation**

N/A

**4 Final Cost by Project**

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
4403	Capex	0.000	0.000	0.000
	Opex	0.095	0.280	0.185
	Removal	0.000	0.000	0.000
	Total	0.095	0.280	0.185

**5 Improvements / Lessons Learned / Root Cause**

N/A

**Closure Paper****6 Closeout Activities**

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All IS Service Transition activities have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the IS Knowledge Management Tool (KMT) lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

**7 Statements of Support****7.1 Supporters**

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Timothy Stevenson	Business Representative
PDM	Deb Rollins	Head of PDM
BRM	Joel Semel	Relationship Manager
PDM	Samir Parikh	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Daniel DeMauro	Director
DR&S	Elaine Wilson	Director
Service Delivery	Brian Detota	Manager
Enterprise Architecture	Joe Clinchot	Director

**7.2 Reviewers**

N/A

**Closure Template**

**8 Decisions**

The US ISSC Sanctioning Committee and Executive Sponsor has reviewed and approved this paper.

Signature..........Date..........  
Premjith Singh  
VP IS Tower Lead, Ops & Network